

follow. As the editor states: "It is hoped to publish the first few volumes quickly with reviews of the present position in most important fields. Subsequently, volumes will be planned as seem to be required by the state of the subject."

The first volume of the series illustrates the breadth of coverage promised by the editor. There are concise review articles on such conventional but timely subjects as Spectroscopy in the Vacuum Ultraviolet (W. C. Price, 16 pp., 72 refs.) and High-Resolution Raman Spectroscopy (B. P. Stoicheff of the Canadian National Research Council, 80 pp., 135 refs.). A 48-page article by D. A. Ramsay, also of NRC Canada, is devoted to The Spectra of Polyatomic Free Radicals. D. H. Rank of the Pennsylvania State University has contributed a very short article giving formulas for the best values of the refractive index of air, which are of considerable practical importance to spectroscopists in their reduction of data. Dr. Rank also gives a short discussion of the current state of the best value of the velocity of light, in which he emphasizes the later, post-1948 methods. The bibliography, however, includes earlier as well as later determinations and comprises some 80 items, followed by a list of 20 review articles on the velocity of light. Surely this is a most useful, up-to-date compilation of references. Dr. A. Elliott of the British firm of Courtaulds Ltd. presents a 50-page treatment on The Infrared Spectra of Polymers, a field in which there has been tremendous activity during the last ten years. He reviews experimental methods before quoting results and going into structural considerations. A list of 111 references is attached, followed by an 8-page listing of papers on the infrared spectra of polymers—one cannot help feeling that this subject has been exhaustively treated! In the final article in the book, a list of some 212 references follows a 60-page article on Rotational Isomerism About C—C Bonds in Saturated Molecules as Studied by Vibrational Spectroscopy by Dr. N. Sheppard of The Chemical Laboratory of Cambridge University.

An article of special interest to the reviewer is "Modern Infrared Detectors" by T. S. Moss of the Royal Aircraft Establishment of England. This article reports the novel and far-reaching developments that have taken place during and especially since World War II. This excellent, 35-page treatment covers not only thermal detectors but also the more recently developed photoconductive detectors, including the most modern ones: indium antimonide and doped germanium and silicon. Some 87 references are listed. I express the hope that this brief but vigorous review of such a timely and popular subject will come to the attention of the many workers in infrared techniques who do not classify themselves as spectroscopists.

My reaction after perusing the first volume of *Advances in Spectroscopy* was to congratulate Dr. Thompson, his advisory board, and his Volume-1 authors on the excellent, thorough, and authoritative job that has been done. I look forward with anticipation to additional volumes in this new series.

Radioastronomie: Les Méthodes radioélectriques au Service de l'Astrophysique. By J. L. Steinberg and J. Lequeux. 294 pp. Dunod, Paris, 1960. Paperbound 19 NF. Reviewed by E. J. Öpik, University of Maryland.

SPECIAL attention is given to the technique of instrumentation and the astrophysical interpretation of the observations. Solar, galactic, and extragalactic emissions are treated in detail, whereas planetary radio observations are described but briefly. There are copious illustrations and diagrams, and basic literature listed is up to date. The authors are well in the picture of modern developments, including the maser and optical pumping.

They profess to have written the book for the public at large. This, however, is not obvious from its rather technical contents. The "popular presentation" amounts to some looseness of style, details and precise definitions being omitted, formulas unnumbered, and notations consistently not adhered to. For these reasons, more knowledge of physics and astrophysics is required of the reader than in the case of a "special" textbook. There are also inaccuracies in the text which a competent reader would be able to allow for. Thus, on p. 16, the exponent $h\nu/kT$ in Planck's formula is wrongly preceded by a minus sign. On p. 113, ρ_r is called the radiation density per unit volume, whereas it actually is Planck's flux intensity per cm^2 , sec and steradian denoted by $B(\nu)$ on p. 16. The weight factors in spontaneous emission are consistently omitted. On pp. 120 and 185 optical depth (épaisseur) stands for opacity.

Despite these minor shortcomings, the book is valuable and can be recommended to the competent physicist or astrophysicist as a broadly sketched introduction to radio astronomy.

Physics and Microphysics (Reprint of 1955 ed.). By Louis de Broglie. Translated from French by Martin Davidson. 286 pp. Harper Torchbooks, New York, 1960. Paperbound \$1.50.

From Atomos to Atom: The History of the Concept Atom. (Reprint of 1952 ed.) By Andrew G. Van Melsen. 240 pp. Harper Torchbooks, New York, 1960. Paperbound \$1.45. Reviewed by E. Mendoza, University of Manchester.

LOUIS de Broglie's book of essays is divided into three sections: Science, Scientific Philosophy, and History of the Sciences. Those in the first and third sections are of doubtful value; they are quite disconnected, with little indication of the circumstances of their publication. They include among others an odd medley of whimsy and physics entitled "Light in the Physical World", an after-dinner speech delivered at a conference on surface states held in 1945, an essay entitled "The Dawn of the Atomic Era" written in the same year and recording the sudden realization that physicists could no longer think and work in ivory towers. There is also an article which may be useful to students in which de Broglie describes the curious properties of a pack of cards obeying a sort of uncertainty



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INTRODUCTION TO ATOMIC AND NUCLEAR PHYSICS, Third Edition

By Otto Oldenberg, Harvard University. 384 pages, \$7.95.

The third edition of a highly regarded text for undergraduates who have taken a one year general physics course. In this edition more emphasis is placed on nuclear physics. The guiding principle of the book is to train the student to understand and judge atomic theory, rather than accept it on authority. Whenever possible, the historical approach is used.

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relation where one's knowledge of the suit of any card alters one's knowledge of the number on it.

The middle part of the book, however, is fascinating, particularly the long article entitled "Personal Memories on the Beginnings of Wave Mechanics". Here de Broglie describes not only the gradual evolution of the basic ideas of wave mechanics but also some of the abortive ideas propounded to explain the paradoxes and apparent inconsistencies.

The translation is adequate except for several slipshod technical terms—among them "separating power" for resolving power, "Galène's crystal" for crystal detector, "spinner" for spinor, "aleatory variables" for stochastic variables.

The book on the history of the concept "atom" should interest the majority of physicists. It starts with a detailed consideration of Greek ideas showing how the various types of atomic theories were evolved to explain the philosophic difficulty of how it was that *changes* could happen in nature. Aristotle faced up to just the same problems as those implicit in annihilation and creation processes. The essential continuity of physical theory through the Middle Ages and the Renaissance and indeed up to the time of Dalton is stressed. Descartes and Boyle appear as outstanding figures against this background. When dealing with the role of the phlogiston theory, van Melsen makes the telling point that the fact that phlogiston had to be assigned a negative weight was not at all a conclusive objection; it is only so if weight is assumed to be immutable, an assumption justified by experience.

The accounts of nineteenth- and twentieth-century physics are (naturally enough) the least valuable parts of the book to physicists. The last chapters demonstrate that unstated philosophic backgrounds still play a large part in every physicist's thinking and that philosophy still has a necessary role to fulfill.

Studies in Theoretical Physics. Summer School (Mussorie, India, May-June 1959). Part 1, 185 pp. Part 2, 152 pp. Govt. of India, Ministry of Scientific Research & Cultural Affairs, New Delhi, 1959. Paperbound. *Reviewed by Jacques Romain, Brussels, Belgium.*

HERE are the proceedings of the first summer school of theoretical physics held in India (1959). It aimed at giving a brief review of the work done during the last few years in the various schools of theoretical physics of India and an outlook on the latest methods and techniques developed in the world. The papers are distributed among three parts, the first two of which have been received to date.

Part 1 deals with a few topics of field theory and nuclear physics, Part 2 with problems about strange particles, showers, and statistical mechanics. As a whole, none of these fields is given a complete or general exposition. The diversity of the questions handled makes the proceedings those of a meeting of experts in various fields. The length and level of the articles